ABSTRACT OF THE DISCLOSURE

To provide a technique of allowing fine and high-performance thin film semiconductor elements to be easily formed on a large-sized substrate. A method of manufacturing a semiconductor device comprises: a peeling layer forming step of forming a peeling layer 12 on a first substrate 10; an insulating film forming step of forming an insulating film 14 on the peeling layer 12; a fine hole forming step of forming a plurality of fine holes 16 in the insulating film 14; a film forming step of forming a semiconductor film 18 on the insulating film 14 and in the fine holes 16; a crystallization step of melting and crystallizing the semiconductor film 18 by a heat treatment to form a crystalline semiconductor film 20 including substantially single-crystalline grains centered substantially on the respective fine holes 16; an element forming step of forming a semiconductor element T by using the crystalline semiconductor film 20; and a transfer step of causing peeling at the inside and/or the boundary surface of the peeling layer 12 to separate the semiconductor element T from the first substrate 10 and transferring the semiconductor element to a second substrate.